Ontario Education
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CALENDAR

OF THE

Ontario Normal College

HAMILTON

WITHDRAWN

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OF THE

Ontario Normal College

HAMILTON

Learn to Do by Knowing and to Know by Doing

ONTARIO COLLEGE OF EDUCATION
UNIVERSITY OF TORONTO

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The Ontario Normal College.

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Fifty years ago the necessity of providing properly trained teachers for the Public Schools of the Province was recognized by the establishment of the Toronto Normal School. The benefits resulting warranted the establishment of a second institution of the kind, and the Ottawa Normal School was accordingly opened in 1875. County Model Schools now numbering 60 were established in 1877 for training teachers for elementary schools. Departments for the training of Kindergartners were soon after opened in connection with the Normal Schools, that at Toronto being established in 1885.

The rapid growth of the High Schools and Collegiate Institutes made an increasing demand for properly trained teachers. This was met to some extent by the establishment of Training Institutes in 1885. Four (subsequently six) of the leading Collegiate Institutes furnished graduates and others who had the necessary scholarship, a course of training in Methods for four months in the year, after which certificates were awarded as the result of a written and practical examination. It was soon felt that students needed a course of training in the Science of Education and in Psychology before the best advantages could be secured from observation and practice in teaching.

The establishment of the School of Pedagogy in Toronto, in 1890 was the outcome. The removal, in 1897, of that institution under its new name—Normal College—to Hamilton, secures the advantages of both features of a High School Teacher's professional training. In the Normal College the benefits of Training Institutes and the School of Pedagogy are combined. The facilities are ample for enabling candidates to obtain not only a theoretical but a practical knowledge of all that pertains to High and Public School work.

The course of Instruction and Training comprehends: (1) Educational Psychology; the History and Criticism of Educational Systems; the Science and Art of Education; School Organization and Management. (2) Lectures on Kindergarten principles and practice; Lectures, with practical illustrations, on the best methods of teaching the subjects in the several departments of Mathematics, English, Classics, Science, and Modern Languages; Observation and Practice in the Collegiate Institute and affiliated schools; Criticisms and suggestions upon the practice lessons of the teachers in training. (3) Instruction in Reading and Elocution; Manual Training and Domestic Science; Temperance and Hygiene; Writing and Drawing; Drill, Gymnastics and Calisthenics.

DEPARTMENTAL REGULATIONS.

(*Approved by the Education Department, June, 1901.*)

1. The Ontario Normal College will open each year on the 1st of October and close on the 31st of May. Any person who has Senior Leaving standing or who is a graduate in Arts of any university in the British Dominions, and who will be eighteen years of age before the close of the College year may be admitted as a teacher-in-training on application to the Minister of Education on or before the 15th of September. (Reg. 74.)

2. The Course of Study shall consist of lectures on Psychology, the History of Educational systems, the Science of Education, the best methods of teaching each subject on the High School course of study, School Management; instruction in Reading, School Hygiene, Writing, Drawing, Stenography, Physical Culture; practice teaching; and such other subjects as may be prescribed by the Minister of Education. The marks allowed for examination purposes shall be as follows: Psychology and Science of Education, each 200; History of Education, School Management, Methods in English and History, in Mathematics, in Science, in Classics, and in French and German, each 150. (Reg. 75.)

3. Teachers-in-training shall lodge in such houses only as are approved by the Principal; ladies and gentlemen shall not board in the same house nor shall they mingle together in the class-room or in the halls of the Normal College. They shall attend regularly and punctually upon lectures and shall submit to the rules of the College with regard to discipline, or any other matter required by the Principal, and shall undertake such practice teaching as may be prescribed by the Minister of Education. (Reg. 76.)

4. The Principal shall be responsible for the organization and management of the College and for the discipline of the teachers-in-training. He shall prescribe the duties of his staff, and shall from time to time be present at their instruction and at the practice teaching of the teachers-in-training. He shall report the sessional examinations to the Education Department on the forms prescribed by the Minister of Education and shall make in addition such observations with respect to the conduct of each teacher-in-training and his aptitude as a teacher as he may deem expedient. (Reg. 77.)

5. Each Lecturer shall explain and illustrate the best method of dealing with each branch of his department as it should be taught in the different Forms of a High or Public School, and shall, as far as possible, explain and justify his methods on scientific principles, giving model lessons for classes in different stages of advancement. He shall keep a record of the practice teaching of each teacher-in-training, and shall report to the Principal from time to time any breach of discipline or any irregularity on the part of the teachers-in-training or any other matter that comes to his notice which may affect the work of the College. (Reg. 78.)

6. Teachers-in-training shall take two written examinations during the Session, viz., one in December and the other in March, and such oral examinations as may be considered necessary for testing their knowledge of methods and their teaching ability. These examinations may be conducted by the staff of the College; the number of papers at the sessional examinations and the value of the marks in each subject shall be the same as are prescribed for the final written examination. No teacher-in-training shall be recommended to pass by the Examiners who has made less than 34 per cent. of the marks at the sessional examinations (fifty marks being the maximum for each) in Reading, Writing, Drawing, or Physical Culture. Any candidate who obtains 34 per cent. of the marks in each subject of the examinations (the sessional and final written examinations being taken jointly), and fifty per cent. of the aggregate marks, shall be entitled to pass standing. Candidates making seventy-five per cent. of the aggregate marks shall be awarded honors. (Reg. 79.)

7. At the end of May in each year the teachers-in-training shall submit to an examination conducted by the Education Department. Any candidate who obtains the required standing in Psychology, the Science of Education, the History of Education, School Management, Methods in Mathematics, Methods in English, Methods in Latin, Methods in Elementary Science (the Primary course in Botany and Physics) and Methods in one of the following groups, viz.: (*a*) Greek, or (*b*) French and German, or (*c*) Chemistry, Physics and Biology, shall be entitled to a Normal College Interim certificate. The holder of a Specialist's non-professional

certificate in any of the courses recognized by the Education Department who passes the final examination (including methods in the subjects of his non-professional certificate) shall be entitled to a Normal College Interim Specialist's certificate in the subjects of his non-professional Specialist's course. All students entering the Normal College, irrespective of the academic course which they may have taken, must take the course prescribed, subject to the following conditions:—Holders of Senior Leaving Certificates, granted on Departmental examinations, may omit Latin if they do not select the Greek option; unsuccessful candidates at previous examinations will be allowed to write at the final examination of any year without attendance at the Normal College, and may confine themselves to the same subjects as previously taken; teachers of ten years' successful experience, who hold Normal School Certificates, and who have the necessary academic standing, may write at the final examination of the Normal College without attendance; any person graduating with Honors from any University in the British Dominions, who has spent two years as a registered student in postgraduate work in any British, European or other University approved by the Minister of Education, may write at the final examination of the Normal College without attendance, on furnishing satisfactory evidence of having taken such postgraduate course. (Reg. 80.)

8. Any person who has passed the final examination of the Normal College shall be entitled to a Normal College Interim Certificate. A Normal College Interim Certificate shall entitle the holder, if under 21 years of age, to teach in a Public School only, and if over 21 years, to teach in a Public or High School. After two years' successful experience as a teacher, the holder of such certificate shall, on the report of the Inspector concerned, be entitled to a permanent certificate as a First Class Public School teacher or as a High School assistant, ordinary or specialist, according to the class of school in which the experience was acquired. Normal College Interim certificates may be extended from year to year on the report of a Public or High School Inspector. Any graduate in Arts in any University in the British Dominions, who holds a High School Assistant's certificate, and who, as shown by the report of the High School Inspector, has taught successfully three years, (two of which at least were spent in a High School), shall be entitled to a certificate as Principal of a High School or Collegiate Institute. (Reg. 85 and 86.)

The fee for attendance at the Normal College, including examination, is $15.

SYLLABUS OF THE COURSE OF STUDY.

1.—Educational Psychology.

Value of Psychology to the Teacher. Its General (or Disciplinary) Value; its Special (Professional) Value. Limitations of Psychology. Bases, Processes, Products of Psychical Life; Mind and Body, Neurosis and Psychosis.

1. *Bases of Psychical Life.*—Sensation in its three-fold aspect: Knowledge side, Interest side, Impulse side. Discussion of these Aspects.

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2. *The Psychical Processes.*—Non-Voluntary Attention, Natural Interest, Acquired Interest; effects of negative and positive attention.

3. *Association.*—Definition, Conditions, Varieties (External and Internal), Results, Mental Order, Mental Freedom, Formation of Habits—Discussion of these.

4. *Voluntary Attention.*—Relation of Non-Voluntary Attention; to Association; early forms; later, more complex forms; Activities involved in Attention:—Adjusting, Selecting, Relating—Discussion of these, *i.e.*, as Apperception and Retention.

5. *Intellectual Development.*—Development of Intelligence is from the Presentative to the Representative—from the Sensuous to the Ideal—and from the Vague and Particular to the Definite and Universal—Discussion of these. Necessity of Defining Knowledge—of Connecting Knowledge—of Universal and Particular factor—of treating "faculties" as Stages of Development.—Perception, Memory, Imagination, Thinking—Discussion of these Stages.

6. *Emotional Development*—Conditions of Interest. Nature and Growth of Interest. Spontaneity and Interest. Principles of Emotional growth. Stages of Emotional growth. Intellectual, Æsthetic and Personal. Personal Emotions. Social, Moral, Religious. Discussion of these forms and principles.

7. *Volitional Development*—Analysis of Volitional Act: Intelligent—Controlled—Idea of End—Definition.

8. *Factors of Volitional Development.*—The Intelligent Factor—Relation between the Sensory and the Motor. Subjection of Impulses to Idea, or Training of Impulses. The Emotional Factor—Training of Desires. Realization of Desired Idea—Conflict—Deliberation—Effort—Choice. Realization of Desired End forms *Character*—Training of Desires—Training of Character in the primary stages—Relation between Spontaneity and Authority—The "Ought" to be developed from the "Shall."

9. *Stages of Volitional Development.*—Physical Control: Relation to Moral—its Process—its Results. Prudential Control: Definition—Results:—Action—Deliberate—Unified—Determined and Persevering—Intense or Energetic. Moral Control: Definition, Based on Physical and Prudential Acts; which become Moral when subordinated to motives of Right; How Moral action is secured; Results of Moral Control. Moral *Character.*

2.—Applications to Education: (a) Training, (b) Instruction.

(*a*) *Training.*—Aim and Scope of Education. Limitations. Physical, Intellectual and Moral Education. The Psychological Basis. The psychical functions mature in a certain order. The Social Determinants. The Home, the School, the State, in relation to Education. Education begins with psychological insight into the child's powers, interests, etc., and is continuously controlled by these. These interpreted by Social Relationships.

1. *Association*—Association and Habit—Formation of Habits—Habits and Habitude; function of Habit—influence in Physical, Intel-

lectual and Moral Education—Tyranny of Habit—Special Habits—Association of *Activities*—Sensuous Association—Discipline and its Meaning—Knowing and Doing, etc.

2. *Attention*—The Development of Interest—Fundamental in Development—Culture of Attention based on its three Activities—Detailed exposition of this culture. Association and Attention viewed as Apperception and Retention; Knowledge and Mental Power—learning and teaching—formation of Mental Function, Habit and Character, etc.

3. *Training of Perception.*—Considered in itself—Accuracy, fullness, independence, habit of observation. In relation to other stages—Basis of representative knowledge—need of store of perceptions—need of concreting the abstract—evils of omission of this—too much of the concrete, etc. The cultivation of the senses and the observing powers.

4. *Training of Memory; Learning and Recollection.*—General Principle—"Kinds" of Memory—of Separate Facts—of Connected Facts. Rote Memory, its evils—Cramming—Intelligent Learning by heart *vs.*, rote learning—Rational Memory—in Mastering Complex ideas—proper methods of training—good perception, good thinking, therefore good memory—Attention Analysis, Arrangement, Reproduction, etc. Summary of Methods in development of Memory.

5. *Training of Imagination.*—Importance of Imagination—training chiefly *indirect* because of its free character, its individual character, its unconscious growth; chiefly through cultivation of expression of feelings that stimulate the imagination, of religious emotions, influence of teacher; and through material to be worked upon—History and Geography, Natural Scenes, the Beautiful in Art, Literature, etc—Representation and Construction in Kindergarten and primary work—word pictures—tales, romances, etc.,—ideal construction; invention in later stages, etc.,—influence of drawing, music and literature in all stages, etc.

6. *Training of Thinking.*—Depends on lower stages—analysis—abstraction—generalization—naming—relations involved in all knowledge—the grouping of facts—training through language and literature—physical science—mathematics. Relation between Impression and Expression in the child; in later development. The Psychology of Language.

7. *Training of the Emotions.*—General principles; Widening and deepening of feeling through transference, unconscious sympathy, conscious sympathy, repetition, co-operation and attention; Culture of the intellectual, æsthetic and personal feelings,—social, moral, religious. (*See* prescribed and recommended text-books). Emotion and action, love by doing.

8. *Training of the Will.*—Interaction of Knowing, Feeling, Willing; Moral Training. (See prescribed and recommended text-books for general treatment. Short course on Ethics applied to Moral Education).

(b) Instruction and its Relation to Training.

1. *Bases of Instruction.*—Activity of learner—interest of learner—Image in mind, derived from his own *experience*—made prominent and energetic—application of doctrine of attention, etc.

2. *Ends of Instruction.*—Instruction to be significant—in general—in detail—definite—practical—right habits—organized faculty—powers and processes strengthened—formation of character; the *practical.*

3. *Methods of Instruction.—Teach one thing at a time.*—The proper method; Analytic and Synthetic—correlation of these—advantages of Analytic method; economy of mental energy—defines mental products—excludes irrelevant material—prepares way for memory—forms analytic habit—is *practical*—abuse of analytic method.

Advantages of Synthetic Method.—System—knowledge—logical power—graded instruction—preparation. It demands for the pupil: Beginning with presentation—recognition and discovery in perception. Formation of groups of ideas ("apperceptive masses")—interest, economy, and means of securing this—attention, exercise of these apperceptive masses in acquisition—recognition—interpretation—assimilation—developed power; requires clear presentation, reviews, mental preparation, exercise of past knowledge, i.e., the *remaking* of experience—reproduction. Correlation of Studies from the Psychological Standpoint; from the Social Standpoint. Summary of explicit Principles.

4. *Educational Values.*—Kindergarten Principles and Practice The constructive activities, their value. The Psychology of Subjects. Content *vs.* Form. The Art of Questioning. (*See* prescribed and recommended texts.)

5. *Criticism of Maxims.*—Different "faculties," different culture; Learn to do by Doing; Known to Unknown; Concrete to Abstract; Simple to Complex; Order of Nature *vs.* Order of Subject; Whole to Part; Teach only what is Understood; Words not Things; Education should follow Nature; the end of Education is the Practical; In the Curriculum, nothing *Useless*; Make Subjects Easy, etc. True meaning of such maxims.

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3. Philosophy of Education.

The Science (or Philosophy) of Education, i.e. General Discussion of Education, grounded on the foregoing. This includes: I. The Problem of Education. II. The Subject Matter of Education. III. The Method of Education. IV. The Unity of Process, Matter and Method. V. Brief examination of Rosenkrantz, Rosmini, Harris and Dewey.

The Problem of Education.—The Science of Education. The Philosophy of Education. Their Relation. End, Process and Instrumentalities. Working conception of Education. Relation of Knowledge, Instruction and Education. Knowledge and its Relation to Action. Its Origin is in Action and its Goal in Action Direct or Indirect. The Nature of Knowledge as Connected with Action Illustrated from Biology Psychology and History. Working Definition of Education.

Education as a Process.—Process as to its form. Is the "re-making of experience," etc. Examination of various ends of education. When does education begin and when end. Place of books and other materials of education. Process of education as to its content. What is the quality of this process. The social phase of the process. The individual phase. Relation between the social and the individual phase. Examination of current definitions of education. The psychological

definition The sociological definition. The apparent conflict between these definitions—their reconciliation; properly understood one is the complement of the other. The social aspect involves the question of subject matter. The psychological aspect the question of method.

Education as the process of reconstruction of experience: Study of the individual. Child study. Study of the individual as related to the social whole. The psychologizing of the subjects of the curriculum: The Psychology of Number. Psychology of Geography. Psychology of Chemistry. Psychology of Literature, etc. Educational values: The Information view point; that of Discipline and that of Culture. No opposition between knowledge, discipline and culture in the true sense of the word. True idea of education involves the unity of the three: Relation of subject matter, and method. Misconception regarding them: Subject matter one thing. Method quite another. Fallacy of this: Illustration of the true relation from idea of evolution. Adaptation of environment. Development. Harmony of Powers. The meaning of this as applied to education: Education process is a form of social life—a special type of social organ. The school a social institution—an organ evolved from a complex organism, etc. The whole process is summed up in this: From the natural individual to the socialized or humanized individual by mean of education, which has a sociological and a psychological phase, and gives the individual Knowledge, Discipline, Culture, Self-Control, Character.

The School as a Social Institution.—Informal education. This, too, a social process: The home (and the community). How the individual is socialized: Learns to act socially. Learns to share social values of the community life. The various ways in which this formal education goes on as a socializing process: School education as a social process. The school presents in an orderly manner the social factor which tends to the socializing of the individual. The discussion of the various ways in which this is done. Difficulties in the organization of the school as a social institution. Enumeration and discussion of these and how they are to be overcome. The school and social progress. School maintains and improves the existing social order. Discussion of the means by which this is done.

The Problem of the Organization of the Curriculum.—The question of the correlation of studies. Misconception of the true nature of correlation. True basis of correlation, the differentiation of the several studies out of the unity of experience. Unity of the curriculum, found in the unity of social life. Examination of the various schemes for the correlation of studies. Artificial or empirical correlation. Mere external connection of studies. Against unity of interest. Rational view. Does the material of experience present any unity. Corresponding unity in the Mental processes, *i.e.*, the unity of the subject matter; and, on the individual side, unity of method. Examination of Dr. Harris's theory of correlation. Discussion of Dr. Dewey's fundamental ideas upon the subject. Various typical stages in the organization of experience. The three typical epochs corresponding to these stages: Primary, Secondary and Higher. The educational value of Science. Inadequate views of this value. False view which opposes the humanities to science. Relation of science to the life of man. Science reveals conditions and processes that further the develop-

ment of social life. Ultimate function is finding the unifying principle of all experience. No rigid line of division between human life and nature. No opposition between nature and human nature.

Original Unity of Experience.—Origin of the different sciences as differentiated out of the unity of experience: Sociology, Geography, Zoology, Botany, Mineralogy, Astronomy, Physiology, Physics, Mathematics, Philsophy. Discussion of the relation of these Sciences to each other and to Mathematics—the instrument of growing definitness and accuracy and the organ of interpretation of the sciences. Results of this discussion applied to education. Consideration of the "culture-epoch" theory. Does the development of the child follow that of the race. Discussion of this question: How far true and capable of application in education. Mischievous effects of inadequate view.

Study of Science based on thought that Science reveals the materials and processes underlying social life. Study of nature and the study of human nature not opposed—rather correlated. The human or culture aspect of science. Relation of the scientific branches to the Humanities is the question of relation between the constructive activities and art: Man's constructive power. Tendency to express himself is the origin of the whole matter: Man primarily a working being. Thus becomes conscious of the power of self control: The Idea of tools. Science and man's constructive ability: The industrial arts, the expression of science. Science and history; the unifying idea in history is the ability of man to control nature. Industrial history, the branch about which other historical ideas group themselves. History is intimately connected with man's constructive activity and with the development of science. Connection between history and Literature. Literature, the expression of the social life. Primitive literature is primitive history. Poetry as a criticism of life. Literature concerned with the interpretation of life. Bond of connection with social life, with science and with industrial art. Relation between the constructive activities and the fine arts. Relation of art to literature. The constructive activity and the artistic activity.

Manual Training.—Its place in a scheme of Liberal Education; Its limitations. Constructive activities in present system of education summed up in Manual Training. The name shows an inadequate conception. The ordinary arguments for its introduction—merely empirical. Manual Training justified and defended on both psychological and sociological grounds. Hence should be a part of every liberal education. Fundamental reason; they begin with the motor side. They ought to reflect the typical forms and processes by which man has made things and their forces subservient to himself. This view shows the futility of the ordinary objections to Manual Training. Some objections considered: "Enough of this kind of work out of school" "Division of labor has relieved the individual from all thought of such processes." "Any knowledge of the process wanted may be had from books," etc. Examination and refutation to these objections. Prime necessity for giving central position to a course of hand work. Different forms of this hand work: First, where the material is *directly* adapted, clay modelling, sand moulding, whittling and wood carving, etc. Second, where certain material has to be definitely fitted and re combined, *e.g.*, simple carpentry work. Third, when there are changes in the nature of

the material used, *e.g.*, cooking. These activities considered in their social bearing: What sort of service do they represent. Food, clothing, shelter, the fundamental necessities. The whole complex life of to-day illustrates this: Activities referred to, a point of introduction to this range of social considerations. Pupil gets organs for appreciating the part which they play in life. Their humanizing influence, etc. These constructive agencies in relation to other studies. Opportunities for teaching science with such work. Follows the order in the development of the race. Attention must be given to both materials and processes. Senses constantly on the alert. Attention—the fundamental intellectual process—gets its normal motive and is trained from the beginning. Constructive activities and mathematics; numerical and geometrical ideas practically used from the start. Child passes from the concrete to the abstract in the only normal way. Questions of size, shape, number, proportion, etc., constantly coming to the front. Continuity of *action*, leads to continuity of ideas; to thoroughness in thought. Similar remarks may be made about sewing and cooking.

Relation of history and geography to constructive activity. Fundamental idea in history that of bringing natural forces into subjection to man. History made the means of better realizing social life. Affords practice in the analysis and identification of social forces. Giving effective help to understanding *present* social forces. All history to be an indirect sociology. How to make this connection of past and present. Relation between Manual Training and Literature. More indirect. Found through history. Necessity to the pupil of some experience of his own, something to be expressed, which grows out of his own life. Development of these "utilitarian" ideas in to the appreciation of literature in the higher sense. Literature as an interpretation of life. Myths; their place, their use, and their limitation. Close connection between the arts and the constructive activities: These controlled by science, interpretated by history. The arts—the flower and fruit of the educative process. Discipline, Knowledge, Culture. Discussion of these: Not three things but one. Culture, the expression of the other two.

Relation between the Academic and the Practical.—Motor Impulses and tendencies to expression. Mutual reaction of the practical and the intellectual. This the universal law of progress. Art practically precedes formal knowledge. Continually and normally exercises the primary intellectual functions. Helps to realize the true idea of education as the reconstruction of experience, therefore, develops self control, that is, character. Does this in a normal and therefore economical way. From action to idea and from idea to action. Expression constantly accompanying impression. Interaction between the two activities. Secures perfect mental images and ultimately the *habit* of accurate mental imagery. Affords a sound basis for philosophical correlation of the intellectual branches. Training rationally the fundamental intellectual functions, it develops with the least waste the power for the mastery of any other branch of the curriculum. Enlarges and enriches the curriculum, but practically shortens it by unusual increase of mental power. Great value on the moral side. Social service the end of education. School workshop promotes the socializing process. True spirit of altruism. All taking part in process by which

civilization begins, is maintained and advanced. Develops true human sympathy, the sole basis of development of the true ethical life of society. Tends to mitigate the present industrial and social evils. Tends to compensate the inequality between rich and poor, making th latter share in the intellectual and artistic wealth. Better Knowledge, better Discipline, better Culture ; the outcome of clear idea of the unity of human experience. These not *three* things but *one*. Culture in best sense meaning Service of Humanity.

The Method of Education.—Question of method. How to give the individual greater control. Connection between subject matter and method. Not opposed but correlated. Various attempts at this correlation. Examination of the culture-epoch doctrine, the doctrine of parallelism must be used with caution. So far as it can be used at all we must pass from processes in race-development to processes in individual development. Attempts to make literature centre of correlation on the culture-epoch theory, a mischievous error.

Question of method a question of the development of self control or character. Meaning of this self control : Lifting the individual from subserviency to things and their forces, to their mastery. This character contains three factors, an intellectual, an emotional and a volitional. The first giving good judgment, the second emotional delicacy, the third force of will—that is, character clothed with steadfastness and courage. Question of how this is to be done is question of psychology—involves three things. The nature of the Experience used in gaining new experience. The nature of the Reconstruction, that is what is involved in the apperceptive or learning process. The nature and meaning of Control of Experience. Discussion of these points. Complete realization of experience the beginning and the end of education.

The image the instrument of this.—We learn with what we have learned. Learning, the process of building up an experience —complete realization in the process of development. This "what we have learned" is a part of the old experience made over to assimilate the new experience. This re-made experience is the *Image*, and is the instrument of all learning. Discussion of the nature and function of the image—educational inferences. Sole and only instrument of learning. Weakness of the school room due to failure of the teacher to grasp the nature of the image—the formation of the image, the tool of learning : is a *personal activity*. Image not a bare mechanical copy of some previous experience but a remaking of some past experience for the purpose of realizing a new experience. It is a certain reality—a certain doing. Doing for a purpose. Fatal error of the attempt at direct formation of images—and of using mere material as a substitute for re-made experience. Illustrations of this. The rightly formed image grows by its own vitality into a new experience Complete discussion of the nature, origin and function of the image. Take care of the Image and all else will follow.

The Learning Process.—Reconstruction of experience. The image as instrument of this process. Apperception and retention, movement towards the new and modification of the old. Function of habit. Unconscious element in habit. Power in a given direction. Instrumental character. Interaction of habit and image. Process of reconstruction identical with attention. Thoughts and actions unified for a

definite end. This end to stand out prominent in consciousness. Review of the activities involved in attention. Meaning of thoroughness. Meaning of from concrete to abstract. Concentration. Necessity of emphasizing the unifying purpose or idea Use and abuse of analysis. Analysis and synthesis. Summary of the conditions and processes in the effective reconstruction of experience in thorough learning. The *control of experience;* meaning of control, of self control. How it is brought about. Selection of ends and adaptation of means. Different stages in the development of control. Knowledge. Discipline. Culture. Character.

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4. History of Education.

Introductory sketch on Ancient Education : Egyptian, Chinese, etc. ; Babylonian and Assyrian ; Jewish Education.

Greek Education.—Education in Sparta—in Athens. Plato on Education. Aristotle on Education. Roman Education. Mediæval Education—The Universities ; The Renaissance. The "Educational Reformers"—(*See* Quick and recommended texts). Analysis and Criticism of the different "Systems," Comenius, Pestalozzi, Herbart, Froebel, Spencer, etc.

5.—School Organization and Management.

1. *The School*—Its function ; scope of school management ; kinds and means of education ; responsibility (with its limitations) of Teachers and Trustees.

2. *Physical Culture.*—Its importance ; school hygiene ; requirements regarding sites, buildings, furniture, etc. ; heating, lighting and ventilation of school buildings ; physical exercise ; games, gymnastics, military drill, etc.

3. *Intellectual Development.*—Influence of the school ; acquisition of knowledge, power and skill ; training of the memory, the imagination, the language faculty, the judgment and reason.

4. *Moral Training.*—Basis of ethics ; intellectual growth essential to moral growth ; the personality of the teacher ; moral value of good teaching ; direct and indirect ethical training ; character building ; training of the will ; formation of tastes and habits ; ethical value of school studies.

5. *Discipline.*—Qualifications of the good teacher ; aims, characteristics, conditions and devices of discipline.

6. *School Incentives.*—Choice of motives ; artificial incentives ; the prize system ; natural incentives ; desire for knowledge, approbation, activity, self control, etc. ; the sense of honor, of right, of duty.

7. *Punishments.*—Necessity and ends of punishments ; characteristics of proper punishments ; the discipline of consequences ; judicious and injudicious punishments ; corporal punishment.

8. *School Organization.*—Its advantages ; characteristics of elementary, secondary and higher education ; state and local control ; basis of classification ; ungraded, graded and High Schools ; size and number of classes ; mixed classes ; manifold and single classification ; promotions.

9. *School Programmes.*—Educational values ; co-ordination, correlation and concentration of studies ; fixed and optional courses ; bifurcation ; time tables ; school records.

10. *Recitations.*—Preparation by teacher and pupils ; manner of the teacher ; value of method ; oral and written work ; empirical, developing, lecture, conversational and other methods ; illustrative teaching ; analytic and synthetic methods ; deductive and inductive methods.

11. *Principles of Teaching.*—Concentration ; interest ; definiteness ; arrangement of matter ; unity ; self-activity ; thoroughness ; stimulus ; drill ; reviews ; progression—known to unknown, simple to complex, concrete to abstract, wholes and then parts, knowing and doing, etc.

12. *The Art of Questioning.*—Its aims ; its abuse ; matter, form, kind and order of questions ; objectionable questions ; class questioning—simultaneous, consecutive, promiscuous and combined methods ; answers.

13. *Written Examinations.*—Their objects and advantages ; training, promotion, qualifying and competitive examinations ; character of questions and answers ; objections considered ; examination of answer papers.

II.—Special Methods.

The Lectures on Methods are given by specialists in the several departments. Each lecturer develops systematically the best method of dealing with every subject and topic of his department in the various stages of a pupil's progress ; explains and justifies his methods on psychological principles ; exemplifies in his own instructions the principles of good teaching ; gives model lessons to classes in different stages of advancement ; holds conferences with the students for consideration of observed model lessons and of practice lessons given by the students themselves ; and keeps records of the results of his observations and criticisms.

1.—Mathematics.

1. *Introductory.*—Value of Mathematics as an instrument of discipline ; its principles, its method ; differs from formal logic in its constructive element, etc. ; its process of simplifying ; starts with ultimate conditions, involves analysis and synthesis (thought) ; affords means for training all stages in the development of thinking process ; its primary simple relations constituted by action of thought on sense ; are *a priori*, ideal and universal ; its method involves abstraction and construction ; its relation to physical science ; the basis ; the organ of interpretation ; the type in its certainty and method ; effect in training attention, perception and observation, memory, imagination, thought ; ideal of complete proof ; habits of precision ; perception of related steps in reasoning ; makes other studies easy by making pupils strong, etc. ; examination of Hamilton's onslaught on mathematics ; practical disadvantages of exclusively mathematical habit of mind ; extreme simplification, etc., correction of this tendency by other studies.

2. *Arithmetic.*—The Psychology of; the practical value of; the value of training in the science of; mental arithmetic, its place and importance, strange neglect of; use and abuse of "objective" teaching; a means not an end; number pictures; number symbols; origin and development of the number concept; the Grube method, its merits and its defects; Arithmetic, the unity of based on the unity of the fundamental rules; the simple rules and their relations; rationale of processes; illustrations of the processes and practical applications; the Unitary method, its merit and its limitations; Factors, greatest common measure, and least common multiple; the Fraction, considered as quotient and as equal parts of a unit; development of the rules of fractions; Decimals as special fractions, and as complements of common notation; Proportion, its practical and its disciplinary value; applications to commercial arithmetic, percentages, etc.; comparison of Arithmetical and Algebraic solutions; Mensuration; square root and cube root; faults in teaching.

3. *Algebra.*—Arithmetical Algebra; Transition from Arithmetic to Algebra; generalization of arithmetic; generalization of language and of method; educative value of "mental" Algebra; the introduction and defining of symbols; negative quantity; the simple rules; the equation and its place in Algebra; the enumeration and interpretation of formulas; the inferring of results by varying formulas; factors; application of multiplication and division, highest common factor; lowest common multiple; use of detached co-efficients, etc.; symmetry and its application in elementary Algebra; its disciplinary value. The fraction, a quotient; classes of simple equations; the logic of the extension of the Index Laws; quadratic equations, problems and the object to be kept in view in their solution, etc.

4. *Euclid.*—Merits and defects of as text book in Geometry; development of fundamental ideas in primary classes; limitations of appeals to the concrete; value of experimental proofs; need of clear and definite conceptions of the fundamental truths; how to make Euclid interesting to beginners; models; relation to geometrical drawing; the Proposition and preparation for; application of "learn with what we have learned," and "of one step at a time"; methods of class teaching and class hearing; informal demonstrations; exercise of invention; the place and value of "Riders"; the grouping and relating of propositions; practical applications; Algebraic solutions; Euclid's methods compared with modern methods, etc., etc.

5. *Special Course.*—In addition to the general course which is thus briefly outlined, and which all students must attend, there will be a short course for those who intend writing for the certificate of Specialist in Mathematics. In this course will be discussed methods in Trigonometry and the more advanced parts of Algebra and Geometry; the order of presenting the parts of these subjects so as to secure the most logical and impressive relations among the parts; the relations of the subjects themselves; the place of the teacher in dealing with more matured minds, etc. Throughout the course there will be conferences, discussion of suggested topics practice in outlining lessons, practical lessons, etc.

2.—Classics.

1. Psychologically, what is the special effect of the acquisition of language (vernacular) as compared with that of Mathematics and Physical Science? The effect of acquiring a foreign language in addition to the mother tongue.

2. An attempt to determine the position of Latin and Greek in a correlated system of secondary and higher education. A general survey of the aims and methods of classical study during the past.

3 A search for method. An examination of the chief theories of language teaching and their applicability to the teaching of classical languages, e.g. the method advocated by Gouin and that of Dr. Harper. Valuable features in both "natural" and "inductive" methods. The basis for a sound and reasonable method to be found eventually (1) in the fundamental characteristics of Latin (or Greek), (2) in the real aim of secondary education in Classics. What determines this aim? A brief view of methods in other countries.

4. When should Latin be begun? *Ceteris paribus*, are the age and previous education of the pupil in the secondary schools of real importance? An attempt to determine, in a general way, the contents and arrangement of an ideal first Latin book. The first week at Latin. The necessity of emphasizing at all stages the proper and intelligent phrasing and expressive reading of Latin. Practical treatment of the great difficulties of the elementary stage in Latin, e.g., vocabulary, inflexion, word order, "the accusative with the infinitive," "the ablative absolute," "the dependent question," the gerundive, the construction with verbs of "commanding," etc. Minor difficulties, e.g., prepositions, the dative with certain verbs, the mastering of the verb, the subjunctive as an equivalent for our indicative, etc., etc. Permanent elements entering into an ordinary lesson in elementary Latin.

5. The time at which Cæsar should be commenced. The acquisition of a vocabulary. How shall we pave the way from elementary Latin to successful and profitable work in Cæsar? Necessity of a thorough grasp of the simple principles of "reported speech" and the framework of the Latin "period." A special development of the latter essential to real progress. Translation an art and an end in itself. Permanent elements of an ordinary lesson in translation. How to establish a reading command of Latin. The value of "sight translation." Would "sight translation" as a sole examination test be in the interests of classical study? Latin composition at various stages. Is it finally an end in itself?

6. How to secure interest in school authors. Literary treatment of the school classics. A similar but briefer treatment of Greek. Some variation in method owing to special features of the language and the previous foundation laid in Latin.

7. The need of a literary and historical equipment for the classical teacher. The working library of a classical teacher.

8. *Special Course.*—A short course of lectures for those who are aiming at the specialist certificate in Classics. With these is taken up the method of teaching the more advanced work with higher classes reading Horace, Cicero and Homer, where greater attention can be given to the literary side.

3.—English Literature and Composition.

1. *What is literature?* Literature is language: Language, instrument of thought; has two sides: it expresses some mind-product: it reveals this to human consciousness. Literature in its narrower sense—place of facts in Literature. Its artistic character—unity; its two main factors: Thought—as truth, beauty, sublimity, order; and Expression, as corresponding to these; characteristics of such expression, origin of metaphors, etc. Relation between thought and expression, or otherwise, between form and content. Literature as a subject of teaching should begin early; time saved for literature by improved method of teaching other branches; observing due proportion; self education in literature—supplementary reading, etc. The Imagination in Literature; the interpretation of symbols; the form, the content, historical and ethical imagination, etc. The ethical content in literature. Potency of Ideals. Form habits of acting in harmony with such ideals. Literature first among character-forming subjects.

2. *Why teach Literature?* Canon of education; all-sided culture ("brain" culture, "heart" culture); rationalistic and utilitarian spirit of the age; need of cultivating the æsthetic and the moral; the "humanities"; mischievous tendency of exclusive mathematical and scientific training. The culture idea *vs.* the "practical"; true meaning of "practical"; nature knowledge good, man-knowledge better. Literature properly studied trains attention, memory, imagination and reason directly and indirectly; secures corresponding development and power of expression; mastery of language only by mastery of thought; this from study of "classic writers"—language pure and strong is sign of purity and strength in national life. Choice of authors—classical (English) *vs.* ephemeral literature—evil effects of trashy "literature"; "scrap" literature—its use and abuse—characteristics to guide in making selections for educative purposes, etc.

2. *When should the teaching of Literature begin?* Object of school study of literature—taste for good reading; cultivation of this must begin in primary schools—continue through all classes. This love of good literature not a trait of the "natural" man—must be developed by training—*habit* of reading good literature must be formed—germ of beautiful in every heart, develop this—use of the memory in early (and later) stages—"learning by heart," not *rote* learning; fill the memory with forms of beauty and strength—limitation of maxim "teach only what is understood"—music and literature the chief instruments for cultivating the ideal and spiritual.

4. *The Method.*—No explicit and formal rules. To inspire love of literature, teacher must love literature—the effect spiritual in kind—only the ideal can beget the ideal—teacher inspires love for what he himself loves—this essential in literature—external motives (examinations, etc.) powerless to produce culture effects of literature. The idea of *unity* the basis of rational method. Unity a fundamental law of mind. Intellectual unity; Unity of Emotion The Intellectual and the Spiritual interpretation of a poem. Expressive *reading* an element of power: Poetry being the embodiment of emotion, the inner life can be completely expressed only by oral reading. The language of the intellect, the language of the

emotions. The great value of this in the cultivation of the sympathetic feelings. Emancipation of literature—literature not a lesson in grammar, philology, etc.—how far these are useful or harmful. Annotations, their use and abuse. Author *vs.* annotator; annotator to author or *vice versa*? Letter or spirit?—mere verbal interpretations—borrowed criticism, etc. Questioning in Literature. The analytic and synthetic in teaching literature—from whole to part or part to whole—true meaning of "whole"—varied treatment for different stages of advancement. Historical treatment in advanced classes. Criticism, æsthetical, rhetorical and philosophical. Common Faults in teaching of Literature.

5. *What is Composition*—the end aimed at. The pupils and their attainments. Hindrances to the work. Fundamental errors. Spoken and written Composition. Imitation—give matter; indicate form. Underlying principles—*Thought* and *uttering* thought. Language the instrument of thinking process—the complement of reason—the test and condition of reason-training; every lesson a lesson in language; every teacher a teacher of "composition"; genius of the language; structural phenomena; individual characteristics in writing. Literature in connection with Composition—its value, position and use—extracts and complete works. Subjects of Composition. What constitutes a suitable subject. The teacher, his qualifications, relations to his subject. Methods—the parental method—the book method. Use of Books on Composition and Rhetoric. How to use literature.

6. *Pupils' Work.*—Reproduction, oral and written; the Story, beginning, middle and end—thinking is composing and *vice versa*—sentences and paragraphs—letters, narratives—abridgments, etc.; essays and other written exercises; original and other work. Plan in work and its development.

7. *Teacher's Work.*—How to deal with pupils' exercises; methods with junior pupils, with senior pupils; language in class. Illustrative work by teachers and by students of School of Pedagogy; lessons and plans of lessons. Discussions on points suggested by teachers in training. Complete lessons and presentation lessons will be required.

8. *Special Course*—in English Literature and Composition. A short course of lectures will be given to those who intend writing for the Certificate of Specialist in English and History. The matter of this course will consist of discussion of the best method of teaching Shakespeare's plays and the higher literary qualities of general literature.

4.—English Grammar and Rhetoric.

1. *Grammar.*—Grammar in the public schools; in High Schools. Outcry of the sciolist against this; his "argument" is but an argument against vicious teaching—abolish grammar or improve the teaching? "Learn by experience"—the futility of the "induction" which never leads to definite knowledge. Grammar one of the thought subjects of the public school—its great disciplinary value, its greater practical value—mastery of sentence—structure of words; of the thought-getting process—of thought expression—hence training in thinking. Grammar, equally with arithmetic, the logic of the public school. Relation between thought and language as basis of Method. Discussion of this relation.

2. *When to begin the study.*—Subject abstract—paving way to formal study—when comes power to discriminate subject and predicate?—when ability to comprehend meaning of sentence?—training in meaning of sentence is in substance training in grammar—sentence unintelligible but through analysis (at least unconscious)—Ability to grasp general and abstract notions is proper test in preliminary teaching—then formal study (with good text-book) at ten or twelve years of age—fallacy of the "no text-book" cry—use and abuse of text-books. Methods for different stages—the Primary stages—the Intermediate stage—the Advanced stage. (For suggestions, see prescribed and recommended text-books.)

3. *Rhetoric.*—Not an end in itself. Induction from the study of literature. Teaching the leading principles Avoidance of too much elaboration. Elements of style—word, sentence, paragraph, figures of speech, order and method of teaching—mischief of too much of the technical. Qualities of style—various kinds of composition—oratorical forms. Rhetorical analysis, use and abuse of—based on literature and finds expression in composition—illustration lessons in rhetorical analysis, etc., etc. Complete and presentation lessons in Grammar and Rhetoric by students.

5.—Geography and History.

1. *What constitutes Geography?*—Scope and object of the study. Man in space. Importance of Geography to man's well-being: Intellectually—as to general intelligence, mental development, etc. Physically—as to climate, situation, etc., affecting man. Industrially—pursuits, etc., determined by geographical conditions. Commercially—natural channels of trade, natural markets, etc.

2. *Connection of Geography with other Sciences.*—With Geology in regard to surface characteristics, changes in form, soil, etc. With Mineralogy—as to location, character, etc., of minerals. With Meteorology or Climatology—character and causes of climate, etc. With Botany—the character and extent of vegetation. With Zoology—the character and extent of animal life. With Political Science—in relation to trade, etc. With History—in relation to colonization, races of men, etc. With Astronomy—the earth as a planet, etc. Mathematical Geography.

3. *Knowledge of the Subject by Teacher.*—Fundamental principles in teaching Geography; causes and effects. Logical methods in teaching; natural order, etc., based on Physiography. Methods.—Inductive, deductive, synthetic, analytic, topical; reasons guiding choice of these. *Primary stage*: Preparatory object lessons—idea of maps and scale of maps—definitions—map notation—Basic ideas in mathematical geography, etc. Common faults—*idola scholæ.*

Topography—Its value and methods of teaching it. Maps and Globes—their various kinds and uses. Use and abuse of map-drawing. Value of teaching geography—newspaper items, books of travel, anecdotes and descriptions, pictures, sample of products, etc. Use of local geography, in the *teaching* of geography generally. Illustrations of various topics taken up by lecturer. Exercises, oral and written, by

students in illustration of work. Model lessons by teachers. Lessons and presentation lessons by teachers in training. Text-books: their abuse—their value and use. Books of travel, etc. Lessons and outline lessons. Value in Geography as a means of education.

5. *What History is.*—Importance of History in Education—Intellectual and moral. Connected character of History. Reciprocal influence of Nations. Different aspects of History—Military, constitutional, industrial, social, etc. Geography and Race characteristics in History. Canadian History. The teacher of History and his requirements.

6. *The Teaching of History.*—Principles in teaching History. End proposed in teaching it; difficulties. Methods in teaching History—chronological, topical, analytical, synthetical; the value and application of each. History with children—methods and matter, with purpose in view. How far are constitutional facts available—too much matter for assimilation. Treatment of the Time Element, the Place Element, and the Human Element in History. Methods with the more mature. The character of the matter; the quantity, etc. Interest in study of History—place and method of dealing with, literature, biography, anecdote, legend, manners and customs, etc. Treatment, in teaching, of trade and commerce, laws, religion, warfare, etc. Use of Local History and general knowledge in teaching History. Text-books—Teaching for examinations.—For results in knowledge and discipline. Preparation of work—illustrative lessons and exercises throughout—practice by students. Discussion of suggested topics.

7.—Chemistry.

1. *Introductory.*—What is Science?—Relation of Science and Literature in Education; Evil effects of a narrow curriculum; The Scientific method in Schools; Importance of the science of Chemistry; How knowledge of chemistry is first acquired; What is an experiment? Experiment and observation; Difficulty of accurately observing; Bacon's statement of the two ways of finding Scientific truth, and of the mode in which facts are to be employed in the construction of Science; Facts and ideas both necessary factors in knowledge; The proper use of facts in Science; Experiments give the facts on which we reason; A science of observation and experiment satisfies the "hunger of the senses;" Science advances mind and *vise versa*; Application of these principles to the teaching of Chemistry.

2. Reasons why Chemistry should form part of a liberal education; Training of observing powers; Truth-seeking habit; Thinking on facts; Habit of grasping relations of facts—thinking, analysis and synthesis; defects to be guarded against—discursiveness—induction which leads to nothing—facts only the raw materials of knowledge; The matter of Chemistry useful, the mode of imparting it more so; Object to communicate knowledge, but especially to train thinking and to organize power; The general principles of method in their application to the teaching of Chemistry; Methods of eminent teachers of Chemistry reviewed—Faraday's, Frankland's, etc.

3. Discussion of the three methods of teaching—the text-book method, the lecture-room method, and the laboratory method—investigation; merits and defects of each; authority and use and abuse of each method—methods of teaching considered with reference to the laws which govern development of intellectual faculties—concrete to abstract, etc.; Facts, laws and principles; Scientific information *vs.* training in science—logical faculty trained by language—also by thinking relations of things.

4. Importance of good experiments—general directions and cautions for making experiments—Illustrations of good and bad methods of experimenting—of several experiments for illustrating same laws, preference to be given to those most easily performed, most striking and least costly. Illustrations—Examination of apparatus necessary for the High School course—what to buy and what may be constructed—importance of having pupils construct as far as possible their own apparatus—home-made apparatus, with examples. Chemistry in the Public Schools.

5. Order in which the different subjects in Chemistry should be developed; Roscoe's order; the order of the valency of the elements; the order following the outline of Mendelejeff's classification of the elements—the advantages and disadvantages of each method—best method for beginners discussed.

6. Meaning of the term Law in Science—the laws of Constant Composition and Definite Proportions experimentally established; The evidence on which the laws depend compared with the evidence on which the law of Avogadro rests—this law fully discussed and its importance in Chemistry pointed out—it bears the same relation to Chemistry that the Law of Gravitation bears to Astronomy—atoms and molecules fully discussed—Sir William Thompson's method of estimating the size of a molecule of water.

7. Chemical Nomenclature—its history and development—its comprehensiveness illustrated by what may be learned from the formula of water H_2O; Importance of a familiar understanding of chemical language—a systematic plan for the teaching of the language of chemistry.

8. Chemical Equations and modes of chemical action—difference between chemical equations and algebraic equations—the dependence of chemical equations on experiments—application of mathematical principles to finding the co-efficients of chemical equations.

9. Chemical Arithmetic, its use and abuse—when and how it should be introduced into chemistry—its importance in leading to and testing definite knowledge—relation of mathematics to science—the type, the basis, the interpretation—unscientific mathematics and unmathematical science—illustrations of use of chemical equations in applications of Boyle's law, the law of Charles, etc.

10. The best methods of teaching the chemistry of Oxygen, Hydrogen Nitrogen and Carbon, and their more important compounds. Some applications of Chemistry to every-day life illustrated—baking, cooking, cleaning, etc.—how important and useful facts in chemistry may be taught in public schools—with good educational effect—without slighting other subjects.

8.—Physics.

1. Physics defined. The essential unity and interdependence of the various branches of Physics.

2. *Reasons for teaching.*—For disciplinary value of inductive process—for beauty and intellectual attractiveness—for utility of physical truths—for perception of law—for training the mind for sensible views of things affecting daily life—to give general insight into practical application of physical facts to purposes of life.

3. Elementary Physics as a teaching subject compared with elementary chemistry, etc.—with elementary mathematics.

4. *The use of Physical truths.*—Promote industrial progress by stimulating improvements—Illustrations—they prevent costly and unphilosophical experiments—obviate ignorant opposition to salutary changes—Illustrations.

5. *Use of Scientific Terminology.*—To fix and crystallize facts and distinctions already perceived and explained in the first instance without them—how to translate data into algebraic language and *vice versa*—Illustrations.

6. *Physical Apparatus.*—What to purchase and what to construct—how to make apparatus—precautions in making experiments—interpretation and assimilation—how to connect knowledge already possessed with what is to be obtained through experiment—how to arouse curiosity in pupils and create a desire for scientific knowledge, etc.

7. How to question nature to get at the laws underlying phenomena—cause and effect—the use of hypotheses and theory, of laws, natural and empirical.

8. *Method.*—From things, not books—importance of personal acquaintance with facts—pupils must carefully observe phenomena, and make experiments—register results of these—make hypotheses to explain the facts—verify each hypothesis by new experiments—apply the hypothesis thus verified to new truth—this inductive process illustrated by various experiments and application to phenomena—the qualifications of a teacher of physics.

9. The methods of teaching Physics illustrated by lessons on the phenomena of Gravitation; Velocity and Acceleration; Energy and Work; Newton's laws of Motion; Buoyancy and Specific Gravity; Boyle's law; Charles' law; Chemical Change; Barometer; Heat; Expansion; Radiation; Specific and Latent Heat.

10. Discussion of Fouillee's "Education from a National Standpoint," Book II.

11. Experimental illustrations of lessons in Sound, Light, Magnetism and Electricity.

9.—Biology.

1. *Introductory.*—Aims in teaching this subject; the importance of the study of Biology,—the general principles underlying the science and art of teaching it; the Type Method in teaching biology; the different

methods of recording results by the students—drawing, description;—the advantages of each; methods of eminent biologists reviewed—Darwin, Agassiz, Gray, Huxley, etc.; latest aspects of the study of biology; the place and use of books, charts, etc.; Excursions; the collection and preservation of specimens.

2. *Botany*—

(a) Primary—Methods of conducting Botanical work and the appliances needed; use and abuse of descriptive schedules; work to be taken in different seasons; Terminology—its importance—when and how to introduce it; Phanerogams—Morphology of the different members of the plant; Emergences; Germination; Reproduction of flowering plants; pollination; fertilization; the nature of fruits and seeds. Ecology—The relation of plants to their environment; light relations of plants; peculiarities of aquatic plants; marsh-plant, etc. Classification; its importance; how to teach; identification of plants with illustrations; Characteristics of the following orders: Ranunculaceæ, Cruciferæ, Malvaceæ, Leguminosæ, Rosaceæ, Sapindaceæ, Umbelliferæ, Compositæ, Labiatæ, Cupuliferæ, Araceæ, Liliaceæ, Iridaceæ, Gramineæ and Coniferæ.

(b) Advanced.—The work of the Primary Course reviewed.

Physiological work—The Microscope—The methods of conducting microscopical work. Section cutting and mounting. Minute structure as exemplified in Indian Corn and the Bean. Cryptogams; Chara, mushroom, lichen, moss, liverwort; fern, equisetum, lycopod.

3. *Zoology.*—Methods of conducting zoological work; The apparatus required; with what to begin; modern methods of work in zoology; analogies and homologies. *The fish*:—How to teach the following:—The external features; the respiratory, digestive, excretory, circulatory, muscular and nervous systems; and the skeleton. A similar treatment of the following types:—the frog, the pigeon, the crayfish, the grasshopper, the leech, the earthworm, the fresh water mussel, and the pond snail; also the external features of the turtle and snake. Zoological nomenclature—Illustrations of its use and how to teach it.

Nature Study.—What it is; its purpose; its relation to formal science; its values—economic, aesthetic, educational, ethical and social, when to begin Nature Study, the selection of objects of study; dangers to be avoided—attempting to do too much, diffuseness, superficiality.

Special Course.—A short course of lectures in special topics will be given for the benefit of candidates for specialists certificates in Science.

10.—Modern Languages.

1. *Introductory.*—What should be expected of the teacher of modern languages—What constitutes a knowledge of French and German—Aim of linguistic study, with special reference to the study of French and German—The utilitarian side, the disciplinary side, the literary side.

2. *Method.* An examination of historical methods—the traditional method—modern methods. Inductive teaching—the test of a true method—General principle of method. *Speaking and conversation.*—A means to an end ; abuse of methods. *Pronunciation and Oral Reading.*—Indispensable—their value as an aid in memorizing forms, acquiring vocabulary, and appreciating literature. Methods at various stages.

3. *Composition.*—Underlying principles—application of principles in different stages of instruction—the sentence—the paragraph—re-translation ; condensation, expansion, or reproduction of stories ; original letters, themes, etc.—correction should not discourage—mischief of the dictionary.

4. *Grammar.*—How best taught. Use to be made of the text book. —Excessive details. *Dictation and Audition.*—Their utility—methods of correction. *Translation.*—Importance of—necessity for great care with this work—translation *vs.* transliteration—thought, idiom, spirit, style in translation.

5. *Sight-Reading.*—Value of—methods of treating. *Supplementary Reading.*—Methods of dealing with. Observation and practice of teaching. Criticism—discussion of topics suggested by the teaching.

6. *Special course.*—Lectures will also be given to those preparing for the Specialists' Examinations, dealing with the methods of teaching the more advanced work of the course, giving special attention to the literary and æsthetic side of the work.

11.—Household Science

Lectures and Laboratory Work.

1. *Lectures.*—Position of Domestic Science in the curriculum ; Correlation—introducing Chemistry, Physics, Biology, Botany, etc., to pupils Psychological justification ;—Study of the human body as a machine, its requirements ;—Comparison of body and foods as to composition. Uses of foods to the body ;—The food principles.—Tissue builders,—Heat and energy producers ;—Detailed consideration of each principle. (1) Water, (2) Mineral matter, (3) Fats and Oils. (4) Carbohydrates (Starches and sugars), (5) Nitrogenous compounds,—from following viewpoints—Chemical, the composition of foods ; Physical, the potential energy in foods ; Physiological, their digestion and absorption ; Economic, their cost and relative value as foods ;—Sources of food principles —vegetable and animal Kingdom.

2. *Laboratory Work.*—Practical work in cooking as follows: Brief study of methods of cooking—boiling, simmering, steaming, steeping toasting, broiling, pan-broiling, sautéing, frying;—Application of methods of cooking to different food materials and study of the effect of heat on these ; comparative food value and cost of these food materials ;—Care of foods : methods of preservation :—Course followed :

(1) Beverages.—*e.g.* water, coffee, tea, cocoa.
(2) Fruits.—Fresh and dried.
(3) Vegetables :
    Non-starchy, *e. g.* turnips, beets.
    Starchy, *e.g.* potatoes.
(4) Starch Experiments.

(5) Cereals.
(6) Milk and its bi-products.—Cream, cheese etc.
(7) Eggs.
(8) Meat.—Its preparation and cooking.
(9) Flour mixtures:

Study of flours—lightening-agents, yeasts, fermentation, bacteria, etc.

In connection with laboratory work in cooking—study of certain other departments of household work,—care of kitchen ; care and cleaning of utensils ; care of fire ; study of combustion.

The aim of whole course is to introduce students to the content of the subject of Domestic Science as a Public and High School Study.

12.—Manual Training.

1. *Theory.*—The history and practice of Manual Training School Management ; The planning of Manual Training rooms ; Nature and properties of various materials used ; Growth and structure of coniferous and broad-leafed trees ; Felling and seasoning of timber, its faults and defects : Methods of finishing wood.

2. *Drawing.*—Working drawings to scale of the models constructed during the year, drawn from sketches and from models ; Principles upon which drawings are based ; Blackboard drawing for demonstration purposes ; Orthographic or right lined projection ; Isometric and conventional drawing.

3. *Paper and Cardboard.*—Place in primary school ; Folding, geometrical models, covering, binding, and designing.

4. *Modelling.*—Tools; materials, modelling from objects.

5. *Woodwork.*—Tools ; Exercises in laying out work ; Squaring, gauging, rip sawing, cross cut, oblique, back sawing and wood turning. Planing. ; Surface, smooth, oblique, block, joint, convex, mould and jack. Chiselling ; Vertical, horizontal, oblique, convex, groove, rabbet, and gouging. Boring ; Vertical, horizontal, bradawl, gimlet, countersink. Securing work ; nailing, screwing, and glueing. Finishing ; scraping, filling, sandpapering, staining, and polishing.

6. *Metal work.*—Tools, how made and used ; Materials, how manufactured and used ; Metal Turning, sheet metal work, bent iron work, bent wire work, chipping, filing, soldering. Use of machinery ; Forge work ; Welding ; Care of fire.

13.—Reading and Elocution.

1. *Primary Reading.*—The various methods considered.—Base all methods, so far as possible, on language as intrinsic thought—Word method—in what sense from known to unknown—how far mechanical —passive as against active habit of mind—pupil not to be left wholly to make his own inductions—waste of time in getting facts to learn with—slow acquisition of power of word-recognition—in all primary work teacher guides in analysis—child not to be left to fortuitous inductions. The *Phonic Method*—both analytic and synthetic ; examination of arguments against it—refutation of these—the method justified on psychological principles—the alleged difficulties—detailed explana-

tions and illustrations of the method—expressive reading. Illustrative lessons by the teacher of Primary Reading.

2. *Advanced Reading and Elocution.*—Aim of elocution—scope—not confined to mechanical rules for delivery of a few chosen pieces—deals with the outward manifestations of inward workings of mind. It is both a Science and an Art; the psychological bases of expression—exposition of elocution as both scientific and artistic. Mastery of subject involves physical, vocal and mental training—detailed discussion and exposition of these—value of elocution as a means of mental discipline and general culture—oral expression—a thorough psychical gymnastic—fallacy of the "No-oral-reading" cry—expressive reading in the interpretation of literature, etc.

14.—Drawing.

1. *Introductory.*—Its place—one of the space arts; a form of language, and as such embodying and communicating thought. Its aims and value:—Its primary aim is to represent the real or apparent forms of objects; its ultimate aim is mental development; valuable as a training to the eye and hand; as a means of mental development it trains powers of attention, perception, observation, imagination and reason; a means of educating the æsthetic taste; good taste demands proportion, unity, symmetry and harmony; an aid to the study and teaching of Science, Geography, History and Art; its practical value.

2. *Division of Subject.*—Drawings executed without the aid of instruments as—Freehand drawing of the elements of Historic Ornament; Model and Object Drawing. Drawings executed with the aid of instruments as—Practical plane Geometry; Projection—Orthographic, Isometric and Scenographic (perspective); Design.

3. *Freehand Drawing from copies.*—Value of Freehand Drawing. Forms to be imitated should be of recognized beauty, and adapted to the capacity of the learner. Pictures of objects should not be copied—Reasons. How long to continue Imitation Freehand; value of Dictation Drawing; how to teach Freehand.

4. *Model and Object Drawing.*—Order for form study and drawing. Making of real objects by modelling and by carving, or in cardboad; Decoration of real objects; Drawing or other forms of Representation on a flat surface; Constructive Drawing; Drawing the outline of objects, adding light and shade, adding the proper coloring.

5. *Classification of objects.*—Artificial: Natural. Artificial subdivided into—Objects circular in section, Objects bounded by plane faces and straight edges.

6. *Order of teaching objects and their representation.*—Objects circular in section should be taught first—reasons—steps to be taken—devices to assist the eye; the Sphere and Spheroids—appearances in different positions, representation of natural objects like sphere, grouping of objects, adding lines of expression; the same plan to be observed in teaching Hemisphere, Cylinder, and Cone and their combinations; detection of general forms in all objects. Objects bounded by plane faces and straight edges now to be taught—the cube, prisms and pyramids; Botanical and Zoological Drawing; Memory Drawing; Imaginative Drawing.

7. *Practical Plane Geometry.*—Educational and practical value; descriptive and demonstrative; Instruments used and how to use them; Definitions—Topical plan of teaching the subject; How the subject should be taught to be of the greatest educational value; Constructive Drawing.

8. *Orthographic Projection.*—Planes of projections, terms used, projection of points, lines, planes and solids in any position; sections made by planes. Scenographic Projection (perspective).—How it differs from Orthographic, terms used, projection of points, lines, planes and solids.

9. *Design.*—Object of design, how manifested, its origin; Elementary principles of Ornament; Primary principles—Adaptation, Ideal and symbolic expression, Arrangement, Variation, Repetition, Contrast; Secondary principles—radiation, repose, series, balance, subordination, alternation, growth, order, geometrical arrangement; Color in design; Color the moral element in art; Uses; symbolic meaning; Nature as a guide; Principles of color; Evolution of Ornament; Historic styles; How to teach the subject.

III.—Special Subjects.

In addition to the foregoing course of instruction, observation and practice, there will be full courses of lectures on the following subjects, and on the methods of teaching them:

I. Physiology, Temperance and Hygiene.
II. Writing and Drawing.
III. Stenography.
IV. Drill, Gymnastics and Calisthenics.

IV.—Text Books.

In addition to the text-books prescribed for Collegiate Institutes and High Schools, the following are authorised for the Ontario Normal College: Quick's Essays on Educational Reformers (International Education series. 1890 edition); Preyer's Development of the Infant Mind; Laurie's Language and Linguistic Studies; Corson's Aims in Literary Study and Hand book of Poetics; Crawshaw's Interpretation of Literature; Carpenter's Exercises in Rhetoric and Composition; McLellan's Applied Psychology and Psychology of Number; Winchester's Principles of Literary Criticism; Spencer's Education; Millar's or Landon's School Management; Fitch's Lectures on Teaching; The School Law and Regulations of Ontario.

The following works are recommended for reference.; Mahaffy's Old Greek Education; Compayre's History of Pedagogy; Painter's History of Education; Gill's System of Education; Radestock's Habit in Education; Dewey's Psychology; Sully's Human Mind (Appleton); Adler's Moral Instruction of Children; Sully's Studies of Childhood; Hinsdale's Teaching the Language Arts; Laurie's Institutes of Education, Rosenkrantz, Philosophy of Education; Ladd's Outlines of Physiological Psychology: James' Psychology, briefer course; Murray's Ethics; Psychologic Foundations of Education by Dr. W. T. Harris; Davidson's Education of the Greek People and History of Education; Froebel's Education of Man; Bates' Kindergarten Guide; Mackenzie's Ethics; Thompson's Philosophy of teaching.